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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,201	07/29/2003	Sergey Alexandrovich Korenev	ST8462US	3150

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KUSNER & JAFFE  
HIGHLAND PLACE SUITE 310  
6151 WILSON MILLS ROAD  
HIGHLAND HEIGHTS, OH 44143

EXAMINER

CULBERT, ROBERTS P

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/633,201

Applicant(s)

KORENEV ET AL.

Examiner

Roberts Culbert

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6,7,13-15 and 17-23 is/are allowed.
- 6) ☒ Claim(s) 1-5,8-11,24-27 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 12 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 4/29/05 have been fully considered.

Applicant's arguments with respect to the rejections based on Martinez alone have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment to claims 1 and 27 reciting that the fluoropolymer is polytetrafluoroethylene (PTFE) is sufficient to overcome the rejection based on Hiraoka in view of Legras.

Applicant has argued that the rejections based on Martinez in view of Legras should be withdrawn because only through the benefit of hindsight would one combine a PTFE roughening method and a heavy ion bombardment method. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

It is noted that Claim 11 was rejected in the previous office action under U.S.C 103(a) as being obvious over U.S. Patent 6,565,764 to Hiraoka et al. in view of U.S. Patent 4,956,219 to Legras et al. Applicant has rewritten Claim 11 in independent form instead of Claim 12.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-5, 8-10, 24-27 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,066,565 to Martinez et al. in view of U.S. Patent 4,956,219 to Legras et al.**

Martinez et al. teaches a method of producing a microporous fluoropolymer sheet comprising irradiating the fluoropolymer with X-rays or electrons followed by chemical etching. Martinez et al. teaches that the fluoropolymer is polytetrafluoroethylene (PTFE). (Col. 4, Lines 24-25)

Martinez does not explicitly teach that the dosage level of the irradiation step is selected to be below the rupture energy of the carbon-to-fluorine bonds, but sufficient to rupture the carbon-to-carbon bonds. However, since the dosage levels of Martinez et al. overlap the range provided by applicant, and the irradiated material (polytetrafluoroethylene) and type of ions are the same (electrons or X-rays) it may be reasonably assumed that the dosage levels would produce the result as claimed by applicant. Further, Martinez teaches that the dosage level may be varied to control the adhesion strength of the fluoropolymer sheet. (Col. 3, Lines 28-30) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to vary the dosage level of the irradiation step in order to tailor the adhesion strength of the final product as suggested by Martinez.

Regarding Claim 5, Martinez teaches that the source of electrons is an electron beam. (Col. 4, Lines 18-23)

Regarding Claim 9, Martinez teaches that the etchant is a liquid.

Regarding Claim 10, Martinez teaches using a sodium solution as the etchant. (Col. 3, Lines 16-18)

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Regarding Claims 26 and 29, Martinez teaches that the sheet thickness may be for example 0.79 mm. (Col. 4, Lines 24-25)

Regarding Claim 31, Martinez teaches irradiating from a single source. (electron beam)

Martinez et al. does not teach producing the porous fluoropolymer in sheet form.

Legras et al. teaches a method of producing a microporous polymer in sheet form comprising irradiating an *entire* polymer sheet with accelerated ions to produce damage traces, followed by chemical treatment in a solvent bath for selectively attacking the polymer along the damaged traces.

It would have been obvious to one of ordinary skill in the art at the time of invention to produce the porous perforated fluoropolymer of Martinez et al. in sheet form as shown by Legras et al. in order to manufacture a perforated strip material under acceptable economic conditions with high quality with regard to uniformity and dimensional regularity to be used as a filtration membrane or the like.

Regarding Claim 4, Legras et al. teaches moving a continuous polymer film past a stationary source of ions.

Regarding Claims 24 and 30, Legras et al. teaches that the sheet has a thickness between a few microns and more than 100 microns. (Col. 9, Lines 61-64)

Regarding Claim 25, Legras et al. teaches that the sheet is conveyed through an etchant following the irradiation step. (Col. 6, Lines 42-45)

Regarding Claim 3, Martinez does not teach a thickness of 1-15mm. However, since Martinez et al. teaches a sample with dimensions of 0.79mm, it would have been obvious to one skilled in the art at the time the invention was made to use a sample with a thickness of 1mm or greater. It has been held that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

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**Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,565,764 to Hiraoka et al. in view of U.S. Patent 4,956,219 to Legras et al.**

Hiraoka et al. teaches a method of irradiating a fluoropolymer with an electron beam to decompose a first polymer chain while leaving a second polymer chain intact. (Col. 6, Lines 20-31) Although Hiraoka does not explicitly state a first carbon-to-carbon bond and a second carbon-to-fluorine bond, this would inherently be the case for polytetrafluoroethylene since the carbon-to-carbon bond has a lower bond energy than the carbon-to-fluorine bond and would therefore be decomposed first by the electron beam. Hiraoka et al. further teaches exposing the fluoropolymer to an etchant for a period of time sufficient to etch disrupted atoms and molecules (Col. 7, Lines 5-10) wherein micropassages are inherently formed. Hiraoka further teaches the etchant may be a gas. (Col. 7, Lines 19-34)

Hiraoka et al. does not teach producing the fluoropolymer in sheet form.

Legras et al. teaches a method of producing a microporous polymer in sheet form comprising irradiating a polymer sheet with accelerated ions to produce damage traces, followed by chemical treatment in a solvent bath for selectively attacking the polymer along the damaged traces.

It would have been obvious to one of ordinary skill in the art at the time of invention to produce the porous perforated fluoropolymer of Hiraoka et al. in sheet form as shown by Legras et al. in order to manufacture a perforated strip under acceptable economic conditions with high quality with regard to uniformity and dimensional regularity to be used as a filtration membrane or the like.

***Allowable Subject Matter***

Claims 6, 7, 13-15 and 17-23 are allowed.

Claim 12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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**Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert



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**PARVIZ HASSEZADEH**  
**SUPERVISORY PATENT EXAMINER**